Governor's Office of
Economic Development
Centers of Excellence

Utah Centers of Excellence Program
Description of Centers Selected for Funding in Fiscal 2006-2007
(Dollar amounts subject to minor revision)
List of recommendations for all proposals

Proposals Selected for Funding for the 2006-07 Centers of Excellence Program

Center (University) **Years Funded to Date**

Acoustics Research (BYU) **1**
Commercializing active sound control technology with superior ability to both reduce noise in varied settings (vehicle cabins, computer fans and telecommunications, e.g.) and modify sounds for commercial benefit.

Advanced Communications Technology (BYU) **2**
Improved wireless communications and data transmission for both military and commercial markets is achieved through the use of MIMO (multiple-input multiple-output) technology with multiple antenna elements.

Advanced Imaging LADAR (USU) **3**
Commercializing land-based and airborne high-resolution, laser-based 3D color-imaging platforms for both military and civilian use. One license to RappidMapper, Inc. (now Intelisum), a Utah company.

Advanced Thermal Management Technologies (USU) **NEW**
Technologies for extremely high performance thermal management in the context of physical and vibration isolation, in part from collaboration with Utah State University's Space Dynamics Lab.

Biomedical Microfluidics (U/U) **2**
Engineering technology that controls the movement of fluids in channels smaller than a human hair; micropumps that can deliver tiny quantities of drugs and improved devices for DNA screening are some product examples. Wasatch Microfluidics, Inc., is being spun out. Companion Spinout funding was proposed but was not funded

Control of Flows in Manufacturing (USU) **New**
Applying flow control technology to improve manufacturing processing including particle sorting and thermal sprays. This Center was assigned a business team in 2005-06.

Functionally Graded…Cemented Tungsten Carbide **New**
(Functionally Graded and Designed Cemented Tungsten Carbide and Polycrystalline Diamond Composite Materials) Advanced composite materials with predictable wear and failure characteristics designed for demanding applications such as mining, drilling, and grinding.

Homogeneous DNA Analysis (U/U) **3**
Developing a simple and inexpensive method for genotyping DNA samples from patients or disease organisms right in a doctor's office. One application licensed to Idaho Technologies, Inc. (a Utah company).

Interactive Ray-Tracing & Photo-Realistic Visualization (U/U) **1**
Producing a commercial form of two programs that can process 3-D graphics based on large data sets found in CAD, film animation and scientific models, which existing GPUs cannot handle.

Microarray Technology (U/U) **1**
Developing a superior microarray platform for the molecular diagnostics and research markets with improved sensitivity, specificity and throughput.

Miniature Unmanned Air Vehicles (BYU) **2**
Rapid design of airframes and miniaturized autopilot and guidance systems for tiny UAVs that can be operated by novices have earned the attention of both military and civilian agencies. An autopilot design has been licensed to Procerus, Inc. in Utah. A new Companion Spinout, Flying Sensors, is recommended for a Companion Grant.

Companion Spinout – Flying Sensors **New**
Developing Commercial (non-military) applications for miniature unmanned air vehicles (UAVs) including Real Estate, Insurance Industry, EPA - Multi-Source Air Quality Sampling, Random Testing, Pipeline/Remote Facility Surveillance and Emergency Response/Fire Monitoring – Forest & Commercial

Modified Activated Carbons Technology(U/U) **1**
Developing improved products for gas and water treatment, as well as metal recovery or removal, based on modifications to granular activated carbon. This also was a Super Center proposal in combination with SLCC/Innovabio and SUU. The concept was well received, but was not ultimately approved.

Nanosize Inorganic Material Powders (U/U) **3**
Commercializing a novel, cost-effective process (molecular decomposition) for the manufacturing of nanosize powders, the building blocks for myriad nanotechnology applications, as well as nanostructured ceramic membranes and other devices.

Organic Electronics (U/U) **New**
Development of new polymers for the creation of OLEDs (Organic Light Emitting Diodes) resulting in the commercialization of organic semiconductors with superior luminescence efficiency and color spread, for multicolor displays and white light illumination

Therapeutic Biomaterials (U/U) **2**
Developing applications of biopolymers and hydrogels for clinical use in wound repair, prevention of surgical adhesions, and extending the life of donated organs. Three companies, 1 in California (Carbylan) and 2 in Utah (Sentrx Animal Care and Glycosan Biosciences) have been spun out of the Center to date.

Companion Spinout – Glycosan Biosciences **New**
Commercializing the compounds from Therapeutic Biomaterials for 3-D Cell Culture, Tissue Engineering, Drug Toxicity Testing, & Skin Care.

Titanium Boride Surface Hardening (U/U) **3**
Commercializing harder, longer-lived components and devices – ranging from armor to bearings and orthopedic implants - for the military, biomedical and industrial markets.

Pre-Center Candidates (Assigned a Business Team) for 2006-07 (New Applicants to the COE program)

Cell Therapy (UU)
Capabilities to build a "bank" for stem cells derived from umbilical cord blood (so-called "cord blood") which can be used for many clinical applications in Regenerative Medicine and tissue engineering. Providing GMP and regulatory support for processing, development and commercialization of cord-derived stem cells, biologics and combinational products.

Electronic Mathematics Education (eMath@USU)
Creation and world-wide dissemination of dynamic, computer-based instruction software for K-16 mathematics, including the award winning National Library of Virtual Manipulatives.

MIMO Communications System (UU)
New algorithms for signal detection and reception that significantly improve the performance and throughput of MIMO (Multiple-Input Multiple-Output) wireless communication systems. The developed algorithms offer low complexity and near optimal performance, and are adaptable to any standard.

Solar Biofuels Technology (USU)
Developing a solar powered photobioreactor using minimal land and water resources to efficiently grow high-oil-content microalgae as a feedstock for biofuels such as biodiesel.

Universal Application System (USU)
Commercialization of a web-based system that processes applications for multiple agencies in the government services industry. This technology is at the basis of "UtahClicks" and is also in production in Oregon and Indiana. Plans to adapt this software for other industries are underway.

Graduating Centers as of June 30, 2006

Alternate Strategies of Parasite Removal (U/U) 2 years completed
Preparing to commercialize a safe, nontoxic and rapid treatment for Pediculosis (head lice), a multibillion-dollar, increasingly resistant problem afflicting some 25% of children by the time they're teenagers.

High-Speed Information Processing (USU) 4 years completed
Designing fast algorithms for Application Specific Integrated Circuits, which have value in most military and compact consumer electronic devices. An echo cancellation application enabled the creation of SP Communications, Inc. to make improved speaker phones in Logan, Utah.